

OCT. 31. 2007 3:42PM

866 741 0075

RECEIVED
CENTRAL FAX CENTER

NO. 1183 P. 5

OCT 31 2007

- 2 -

Application No. 10/801,542
Docket No. 74075-2717

Amendments to the Claims:

1. (Currently Amended) A display device comprising:
plural groups including a light emitting element and a thin film transistor which is connected to the light emitting element;
wherein a channel of the thin film transistor orients in a plurality of directions, and
wherein an absolute value of a fluctuation rate of an ON current in a saturation region of a first thin film transistor included in a first group of said plural groups and a second thin film transistor included in a second group of said plural groups which is adjacent to the first group is at most 12%.
2. (Original) A display device according to claim 1, the channel length of the first thin film transistor and the second thin film transistor is at least 5 times as long as a gate width, respectively.
3. (Original) A display device according to claim 1, the first thin film transistor and the second thin film transistor comprises a semiconductor layer which is formed by irradiating with a pulsed laser beam.
4. (Currently Amended) A display device comprising:
plural groups including a thin film transistor and a light emitting element in which brightness is fluctuated depending on an ON current value in a saturation region of a drain voltage-drain current characteristic of the thin film transistor;
wherein a channel of the thin film transistor orients in a plurality of directions, and
wherein an absolute value of a fluctuation rate in an ON current value in a saturation region of a first thin film transistor included in a first group of said plural groups and a second thin film transistor included in a second group of said plural groups which is adjacent to the first group is at most 12 %.
5. (Previously Presented) A display device according to claim 4, the channel length of the first thin film transistor and the second thin film transistor is at least 5 times as long

- 3 -

Application No. 10/801,542
Docket No. 74075-2717

as a gate width, respectively.

6. (Previously Presented) A display device according to claim 4, the first thin film transistor and the second thin film transistor comprises a semiconductor layer which is formed by irradiating with a pulsed laser beam.

7. (Currently Amended) A display device comprising plural pixels including a driving thin film transistor, a switching thin film transistor, an erasing thin film transistor, a light emitting element which is connected to the driving thin film transistor;

wherein brightness is fluctuated depending on an ON current value in a saturation region of a drain voltage-drain current characteristic of the driving thin film transistor; and,

wherein a channel of the driving thin film transistor orients in a plurality of directions, and

wherein an absolute value of a fluctuation rate of the ON current value in a saturation region of the driving thin film transistor included in each a first pixel and a second pixel which is adjacent to the first pixel is at most 12%.

8. (Original) A display device according to claim 7, a channel length of the driving thin film transistor is at least 5 times as long as a gate width.

9. (Original) A display device according to claim 7, the driving thin film transistor comprises a semiconductor layer formed by irradiating with a pulsed laser beam.

10. (Original) An electronic device having the display device according to claim 1, wherein said electronic device is selected from the group consisting of a display device, a video camera, a notebook computer, a personal digital assistant, a digital still camera, and a mobile telephone.

11. (Original) An electronic device having the display device according to claim 4, wherein said electronic device is selected from the group consisting of a display

- 4 -

Application No. 10/801,542
Docket No. 74075-2717

device, a video camera, a notebook computer, a personal digital assistant, a digital still camera, and a mobile telephone.

12. (Original) An electronic device having the display device according to claim 7, wherein said electronic device is selected from the group consisting of a display device, a video camera, a notebook computer, a personal digital assistant, a digital still camera, and a cellular phone.

13. (Currently Amended) A cellular phone comprising a main body, a display portion, a voice output portion, an operation switch, and an antenna; said cellular phone comprising:

plural groups including a light emitting element and a thin film transistor which is connected to the light emitting element;

wherein a channel of the thin film transistor orients in a plurality of directions, and
wherein an absolute value of a fluctuation rate of an ON current in a saturation region of a first thin film transistor included in a first group of said plural groups and a second thin film transistor included in a second group of said plural groups which is adjacent to the first group is at most 12%.

14. (Currently Amended) A notebook computer comprising a main body, a case, a display portion, and a keyboard;

said notebook computer comprising:

plural groups including a light emitting element and a thin film transistor which is connected to the light emitting element;

wherein a channel of the thin film transistor orients in a plurality of directions, and
wherein an absolute value of a fluctuation rate of an ON current in a saturation region of a first thin film transistor included in a first group of said plural groups and a second thin film transistor included in a second group of said plural groups which is adjacent to the first group is at most 12%.

15. (Currently Amended) A semiconductor device comprising:

- 5 -

Application No. 10/801,542
Docket No. 74075-2717

plural groups including a light emitting element and a thin film transistor which is connected to the light emitting element;

wherein a channel of the thin film transistor orients in a plurality of directions, and
wherein an absolute value of a fluctuation rate of an ON current in a saturation region of a first thin film transistor included in a first group of said plural groups and a second thin film transistor included in a second group of said plural groups which is adjacent to the first group is at most 12%.

16. (Original) An electronic device having the semiconductor device according to claim 15,

wherein said electronic device is selected from the group consisting of a display device, a video camera, a notebook computer, a personal digital assistant, a digital still camera, and a cellular phone.

17. (New) A method for manufacturing a display device which has an array of plural pixels having a thin film transistor, the method comprising:

forming an amorphous silicon film on an insulating film;

forming a crystalline semiconductor film by irradiating the amorphous silicon film with a laser beam which is shaped into a linear form;

patterning the crystalline semiconductor film into a folded shape having an alternating stripe pattern, and

forming, over the crystalline semiconductor film, a conductive film in a polygonal shape having more than three sides,

wherein the formation of the conductive film is performed so that at least one of the sides of the polygonal shape has a different length,

wherein the longest side of the conductive film having the polygonal shape is arranged to be parallel to the longitudinal direction of the stripe pattern,

wherein the irradiation of the amorphous silicon film with the laser beam is performed so that the longitudinal direction of the laser beam is arranged to be parallel to the longitudinal direction of the stripe pattern, and

wherein the laser beam is scanned in a direction which is perpendicular to the

- 6 -

Application No. 10/801,542
Docket No. 74075-2717

longitudinal direction of the stripe pattern.

18. (New) The method for manufacturing a display device according to claim 17,
wherein the channel length of the thin film transistor is at least 5 times as long as the length of the longest side that is selected from the perpendicular sides with respect to the longest side of the conductive film.
19. (New) The method for manufacturing a display device according to claim 17,
wherein the laser beam is a pulsed laser beam.
20. (New) The method for manufacturing a display device according to claim 17,
wherein the thin film transistor is arranged to be electrically connected to a light emitting element.
21. (New) The method for manufacturing a display device according to claim 17,
wherein the thin film transistor is arranged to be electrically connected to a light emitting element through the source or drain electrode of the thin film transistor.
22. (New) The method for manufacturing a display device according to claim 17,
wherein the thin film transistor is arranged to be electrically connected to a light emitting element, and
wherein the light emitting element comprises an organic compound between a pair of electrodes.
23. (New) The method for manufacturing a display device according to claim 17,
wherein an absolute value of a fluctuation rate of an ON current in a saturation region between two adjacent thin film transistors is arranged to be at most 12%.
24. (New) A method for manufacturing a display device which has an array of plural pixels having a thin film transistor, the method comprising:
forming an amorphous silicon film on an insulating film;

- 7 -

Application No. 10/801,542
Docket No. 74075-2717

forming a crystalline semiconductor film by a thermal crystallization of the amorphous silicon film,

irradiating the crystalline semiconductor film with a laser beam which is shaped into a linear form;

patterning the crystalline semiconductor film into a folded shape having an alternating stripe pattern, and

forming, over the crystalline semiconductor film, a conductive film in a polygonal shape having more than three sides,

wherein the formation of the conductive film is performed so that at least one of the sides of the polygonal shape has a different length,

wherein the longest side of the conductive film having the polygonal shape is arranged to be parallel to the longitudinal direction of the stripe pattern,

wherein the irradiation of the amorphous silicon film with the laser beam is performed so that the longitudinal direction of the laser beam is arranged to be parallel to the longitudinal direction of the stripe pattern, and

wherein the laser beam is scanned in a direction which is perpendicular to the longitudinal direction of the stripe pattern.

25. (New) The method for manufacturing a display device according to claim 24,

wherein the channel length of the thin film transistor is at least 5 times as long as the length of the longest side that is selected from the perpendicular sides with respect to the longest side of the conductive film.

26. (New) The method for manufacturing a display device according to claim 24,

wherein the laser beam is a pulsed laser beam.

27. (New) The method for manufacturing a display device according to claim 24,

wherein the thin film transistor is arranged to be electrically connected to a light emitting element.

28. (New) The method for manufacturing a display device according to claim 24,

- 8 -

Application No. 10/801,542
Docket No. 74075-2717

wherein the thin film transistor is arranged to be electrically connected to a light emitting element through the source or drain electrode of the thin film transistor.

29. (New) The method for manufacturing a display device according to claim 24,
wherein the thin film transistor is arranged to be electrically connected to a light emitting element, and
wherein the light emitting element comprises an organic compound between a pair of electrodes.

30. (New) The method for manufacturing a display device according to claim 24,
wherein the thermal crystallization of the amorphous silicon film is performed in the presence of a metal catalyst.

31. (New) The method for manufacturing a display device according to claim 24,
wherein the thermal crystallization of the amorphous silicon film is performed in the presence of a metal catalyst which comprises an element selected from nickel, germanium, iron, palladium, tin, lead, cobalt, platinum copper and gold.

32. (New) The method for manufacturing a display device according to claim 24,
wherein an absolute value of a fluctuation rate of an ON current in a saturation region between two adjacent thin film transistors is arranged to be at most 12%.

33. (New) A method for manufacturing a display device which has an array of plural pixels having a thin film transistor, the method comprising:
forming an amorphous silicon film on an insulating film;
forming a crystalline semiconductor film by irradiating the amorphous silicon film with a laser beam which is shaped into a linear form;
 patterning the crystalline semiconductor film into a folded shape having an alternating stripe pattern, and
 forming a conductive film in a polygonal shape having more than three sides,
wherein the formation of the crystalline semiconductor film and the conductive

- 9 -

Application No. 10/801,542
Docket No. 74075-2717

film is performed so that the crystalline semiconductor film and the conductive film overlap each other,

wherein the formation of the conductive film is performed so that at least one of the sides of the polygonal shape has a different length,

wherein the longitudinal direction of the stripe pattern is arranged to be parallel to the longest side of the conductive film having the polygonal shape,

wherein the irradiation of the amorphous silicon film with the laser beam is performed so that the longitudinal direction of the laser beam is arranged to be parallel to the longitudinal direction of the stripe pattern, and

wherein the laser beam is scanned in a direction which is perpendicular to the longitudinal direction of the stripe pattern.

34. (New) The method for manufacturing a display device according to claim 33,

wherein the channel length of the thin film transistor is at least 5 times as long as the length of the longest side that is selected from the perpendicular sides with respect to the longest side of the conductive film.

35. (New) The method for manufacturing a display device according to claim 33,

wherein the laser beam is a pulsed laser beam.

36. (New) The method for manufacturing a display device according to claim 33,

wherein the thin film transistor is arranged to be electrically connected to a light emitting element.

37. (New) The method for manufacturing a display device according to claim 33,

wherein the thin film transistor is arranged to be electrically connected to a light emitting element through the source or drain electrode of the thin film transistor.

38. (New) The method for manufacturing a display device according to claim 33,

wherein the thin film transistor is arranged to be electrically connected to a light emitting element, and

- 10 -

Application No. 10/801,542
Docket No. 74075-2717

wherein the light emitting element comprises an organic compound between a pair of electrodes.

39. (New) The method for manufacturing a display device according to claim 33, wherein an absolute value of a fluctuation rate of an ON current in a saturation region between two adjacent thin film transistors is arranged to be at most 12%.

40. (New) A method for manufacturing a display device which has an array of plural pixels having a thin film transistor, the method comprising:

forming an amorphous silicon film on an insulating film;

forming a crystalline semiconductor film by a thermal crystallization of the amorphous silicon film,

irradiating the crystalline semiconductor film with a laser beam which is shaped into a linear form;

patternning the crystalline semiconductor film into a folded shape having an alternating stripe pattern, and

forming a conductive film in a polygonal shape having more than three sides,

wherein the formation of the crystalline semiconductor film and the conductive film is performed so that the crystalline semiconductor film and the conductive film overlap each other,

wherein the formation of the conductive film is performed so that at least one of the sides of the polygonal shape has a different length,

wherein the longitudinal direction of the stripe pattern is arranged to be parallel to the longest side of the conductive film having the polygonal shape,

wherein the irradiation of the amorphous silicon film with the laser beam is performed so that the longitudinal direction of the laser beam is arranged to be parallel to the longitudinal direction of the stripe pattern, and

wherein the laser beam is scanned in a direction which is perpendicular to the longitudinal direction of the stripe pattern.

41. (New) The method for manufacturing a display device according to claim 40,

- 11 -

Application No. 10/801,542
Docket No. 74075-2717

wherein the channel length of the thin film transistor is at least 5 times as long as the length of the longest side that is selected from the perpendicular sides with respect to the longest side of the conductive film.

42. (New) The method for manufacturing a display device according to claim 40,
wherein the laser beam is a pulsed laser beam.

43. (New) The method for manufacturing a display device according to claim 40,
wherein the thin film transistor is arranged to be electrically connected to a light emitting element.

44. (New) The method for manufacturing a display device according to claim 40,
wherein the thin film transistor is arranged to be electrically connected to a light emitting element through the source or drain electrode of the thin film transistor.

45. (New) The method for manufacturing a display device according to claim 40,
wherein the thin film transistor is arranged to be electrically connected to a light emitting element, and

wherein the light emitting element comprises an organic compound between a pair of electrodes.

46. (New) The method for manufacturing a display device according to claim 40,
wherein the thermal crystallization of the amorphous silicon film is performed in the presence of a metal catalyst.

47. (New) The method for manufacturing a display device according to claim 40,
wherein the thermal crystallization of the amorphous silicon film is performed in the presence of a metal catalyst which comprises an element selected from nickel, germanium, iron, palladium, tin, lead, cobalt, platinum copper and gold.

48. (New) The method for manufacturing a display device according to claim 40,

- 12 -

Application No. 10/801,542
Docket No. 74075-2717

wherein an absolute value of a fluctuation rate of an ON current in a saturation region between two adjacent thin film transistors is arranged to be at most 12%.